

Patent Claims

1. A process for producing a leadframe which is intended to be fitted with a semiconductor chip (2) and
5 to be encapsulated with a plastic compound (4), which process includes the following steps:
 - providing a leadframe,
 - applying an interlayer (5) attackable by an etchant which comprises one or more individual layers, to the
10 leadframe,
 - partially or completely etching into the surface (6) of the interlayer (5) using the etchant.
2. The process as claimed in claim 1, characterized
15 in that silver, a silver alloy and/or a silver compound and/or nickel is deposited for the interlayer (5) by means of chemical or electrodeposition processes.
3. The process as claimed in claim 1, characterized
20 in that silver, a silver alloy and/or a silver compound and/or nickel is applied as a coarse deposit for the interlayer (5).
4. The process as claimed in one of the preceding
25 claims, characterized in that the interlayer (5) is applied in the form of one or more individual layers each having a uniform composition.
5. The process as claimed in one of the preceding
30 claims, characterized in that the etching is effected as grain boundary etching at the surface (6) of the interlayer (5) and/or is carried out by selectively etching out at least one of the alloying constituents or the compound components of the silver at the surface
35 (6) of the interlayer (5).
6. The process as claimed in one of the preceding claims, characterized in that the application of the

interlayer (5) and the etching are both carried out over the entire surface of the leadframe.

7. The process as claimed in one of the preceding
5 claims, characterized in that both the application of the interlayer and the etching are carried out selectively at defined locations of the surface of the leadframe.

10 8. A process for producing a semiconductor device (1), which includes the following steps:
- providing a leadframe as described in one of the preceding claims,
- placing a semiconductor chip (2) onto the leadframe,
15 - applying a plastic compound (4) as encapsulating housing to leadframe and semiconductor chip (2).

9. A leadframe which is intended to be fitted with a semiconductor chip (2) and to be encapsulated with a
20 plastic compound (4), the leadframe having the following features:
- a metallic single-piece base body (3) of a leadframe,
- at least one interlayer (5) which has been applied to the base body (3) and may comprise one or more
25 individual layers,
the interlayer (5) having a surface (6) comprising a matrix of islands (14) of remaining material of substantially uniform height with voids (10) extending between these islands.

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10. The leadframe as claimed in claim 9, characterized in that the interlayer (5) comprises silver, a silver alloy and/or a silver compound and/or nickel.

35 11. The leadframe as claimed in claim 9 or 10, characterized in that the surface (6) of the interlayer (5) typically has a roughness average Ra of between

approx. $0.1\ \mu\text{m}$ and approx. $0.9\ \mu\text{m}$, preferably between approx. $0.1\ \mu\text{m}$ and approx. $0.5\ \mu\text{m}$.

12. The leadframe as claimed in one of claims 9 to 11,
5 characterized in that the remaining islands (14) at the surface (6) of the interlayer (5) typically have a mean diameter of approx. $0.5\ \mu\text{m}$.

13. The leadframe as claimed in one of claims 9 to 12,
10 characterized in that the voids (10) at the surface (6) of the interlayer (5) typically have a mean width of approx. $2\ \mu\text{m}$.

14. The leadframe as claimed in one of claims 9 to 13,
15 characterized in that the surface (6) of the interlayer (5) typically has a ratio of the surface areas of islands (14) to voids (10) in the range from approx. 2:1 to approx. 1:2.

20 15. A semiconductor device having the leadframe (3) as claimed in one of claims 9 to 14, having a semiconductor chip (2) and having an encapsulation of plastic compound (4).